Prospects for the Mineral Industry: Exploring Public Perceptions and Developing Political Agendas

Mary Louise McAllister

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Mary Louise McAllister

Centre for Resource Studies
Queen's University
Kingston, Ontario

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Foreword

The ability of the Canadian mining industry to compete internationally is a subject of much concern to those involved in the industry. In fact, the situation is more and more frequently termed a "crisis." A diversity of factors, alone or in combination, are assigned varying degrees of responsibility for the industry's sense of being caught in a confining web of costs and restraints which it feels powerless to influence. These factors tend to be approached as effects – economic impacts of regulation, restrictions on land access and so on – all from an after-the-fact perspective. An equally important aspect that has been neglected is the political context in which decisions on these issues are made. Dr. McAllister aims to set the industry's concerns in this context to provide some guidance for the direction of their energies into channels where they may have influence over the decision-making process.

The views expressed are those of the author, and do not necessarily represent the views of the Centre or its sponsors.

Moira Jackson
Centre for Resource Studies

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1. Introduction

A combination of new political, economic and market forces is creating a competitive environment that threatens the viability of the mineral industry in Canada – one of the drivers of the country's resource and export economy. The Canadian mineral industry is in trouble. Profits, investment, and reserves are declining. Why? Any mining association will explain by citing a long list of concerns which includes the curtailing of government assistance programs, land access restrictions, a high Canadian dollar, high levels of taxation, low commodity prices, depletion of known economic reserves, increasing competition, rising labour costs, growing environmental regulations, and a lack of public support. It is the lack of public support, however, that is becoming increasingly worrisome to stakeholders in the mineral industry. Traditionally, the political environment was supportive of resource development, and industry encountered relatively few barriers in its quest to explore for and extract minerals. The mineral industry, therefore, has generally looked to technology and economics for answers to improve its competitiveness. Competing demands for the land and growing global competition are forcing the Canadian industry to choose between rethinking its traditional approaches to mining, or reluctantly accepting the erosion of its position as a world leader in mineral exports.

There have been many explanations for the difficulty the industry finds itself in. Mineral economists, while rejecting traditional arguments of resource scarcity, nevertheless acknowledge that the known, easily accessible economic deposits are becoming depleted in Canada. This means that industry and governments need to plan a longer-term strategy in order to explore for, develop and produce minerals. Developing countries are able to attract capital because they have a natural advantage in accessible, high-grade deposits. Production costs are further lowered in these countries because labour is cheaper and regulations governing mineral development are fewer.

Political economists have often argued that the decline of Canada's staple-based economy is inevitable because it relies on an abundance of natural resources rather than on developing new secondary and tertiary industries to sustain wealth.

Technological developments in the so-called post-industrial society and information economy have fostered new markets and productivity gains in the mineral industry, but they have also led to the emergence of new competitive forces. For instance, technological developments have resulted in new materials (e.g. ceramics and plastics) which can be substituted for minerals in many applications.

Some business and marketing analysts suggest that the mining industry has a long way to go in adapting to the new competitive environment; that many of the industry's difficulties lie in its inability to focus on downstream markets; that it concentrates its efforts disproportionately on supply rather than demand. In spite of impressive productivity gains,[1] the perception that the industry has not adapted its production and marketing strategies to meet new global realities

[1] Tremendous productivity gains have taken place in the mineral industry throughout the world. Productivity gains in the Canadian mineral industry, therefore, may not have led to any competitive advantage; they may have contributed only to depressed market prices.

fuels beliefs that it will be unable to remain competitive.

Political institutions and the public policy environment have been changing, creating an increasingly inhospitable environment for resource-based activities. One of the reasons for this is the growing complexity of the modern welfare state, which limits the ability of governments to provide a coordinated regulatory environment which would attract investment capital to resource-based projects. A plurality of conflicting demands on the Canadian federal state and escalating land use disputes contribute to investment uncertainty. Public values and attitudes toward resource development are changing in response to shifting demographic patterns, new recreational interests and evolving political, economic, and physical environments.

For the industry to prosper, it needs to have both favourable economic and political conditions. Much has been written on economic considerations, to the neglect of the equally important political factors. This paper emphasizes the latter. Though many in the industry may wish to see an end to what they view as government interference, they might keep in mind that without governments there are no economies. As economies become increasingly interdependent, the nature and role of government may change but the scope of its activities shows little sign of diminishing. What is required are policies which do not result in a zero-sum equation; that is, policies which don't pit the interests of society against those of industry. Industry needs to work with both government and the public to develop policies which consider economic and political goals.

The following (and by no means exhaustive) review of various explanations for the industry's competitive difficulties and government policy responses inevitably leads one to question the future viability of the industry. The outcome, fundamentally, depends on global markets but it also rests on the willingness and the ability of concerned stakeholders to achieve compromises and to adapt to the changing demands of the modern state and economy.

2. An Industry in Decline?

Mining's low public profile belies its importance to Canada's economy. For example, the value of Canadian (nonfuel) mineral production for 1991 was $16.9 billion. Direct employment in the Canadian mineral industry totalled 330,000. Mineral exports accounted for 17.1 percent of Canada's total domestic exports and provided a trade surplus of approximately $10.8 billion.[2] Canada ranks first in the world as a producer of uranium and zinc concentrates; second in gypsum, potash, nickel, and asbestos; third in molybdenum, platinum group metals, sulphur, and aluminum; fourth in copper, cobalt, titanium concentrates, and silver; and fifth in lead, cadmium, and gold.[3] Mining and mineral processing have been referred to as the "backbone" of over 100 regional economies in Canada. These economies support almost one million people. Additional communities are built on mining-related activities in the secondary and tertiary industries (including tourism, transportation, manufacturing and services).[4]

The Canadian mining sector, however, must contend with a diminishing share of the global market and decreasing known reserves of minerals. Few outside the mineral industry are aware of the difference between mineral reserves and natural endowment. This failure to distinguish between the two can lead to the perception that depleted reserves is synonymous with depleted mineral resources. Such trends and confusion of terms lead policy-makers and others to revisit classical economic assumptions based on doctrines of "increasing natural resource scarcity and diminishing returns, and their relevance in the modern world."[5]

Students of resource economics, however, reject "scarcity" theories, in favour of theories of "abundance" or "innovation." Peter Pearse, a specialist in natural resource policy, points out,

> While the Club of Rome predicted we would run out of natural resources during the 1980s, the opposite happened. World output of almost all agricultural and natural resource products continued to expand to record levels in the last decade... Resources seem to be becoming *less* scarce, in both quantitative and economic terms, in spite of expansion of populations and economies.[6]

Geographer Iain Wallace suggests that the surplus of many so-called "non-renewable resources" in the 1980s resulted from many factors, including

- many large new projects coming into production,
- the introduction of new technologies allowing for improved recoveries,
- increased emphasis on conservation and recycling,
- the actions taken by many governments to diversify their resource base,
- and the growth of Third-World output.[7]

[2] A. Siminowski and J. Currie, Mineral Policy Sector, Energy Mines and Resource Canada, *InfoMac*, The Mining Association of Canada, June 1992.

[3] The Mining Association of Canada, "Mining in Canada: Facts and Figures," Ottawa, 1992.

[4] Bruce Howe, Deputy Minister of Energy, Mines and Resources Canada, "Notes for an Address to the 15th World Mining Congress," Madrid, Spain, 29 May 1992, p. 1.

[5] Harold J. Barnett, and Chandler Morse, *Scarcity and Growth: The Economics of Natural Resource Availability*, Baltimore, Maryland: John Hopkins Press, 1963, p. 2.

[6] Peter H. Pearse, "Natural Resources in Tomorrow's High-Tech Economy: The Search for Sustainable Development Strategies," *CRS Perspectives*, Kingston: Centre for Resource Studies, Queen's University, October 1991, p. 17.

[7] Iain Wallace, *The Global Economic System*, London: Unwin Hyman, 1990, p. 56.

While there is a general lack of awareness about increasing productivity in the mineral industry, there is also little understanding about the potential of minerals themselves. Margot Wojciechowski argues that we need to reconceptualize our views about the nature of mineral reserves and resources. She questions their classification as non-renewable, arguing that economic mineral reserves should be viewed as a flow rather than a limited stock.

> The flow is maintained by investment: investment in exploration; and investment in new technology... Innovation means new discoveries; it means major expansions of reserves and mine life at existing mines; it means that deposits that formerly were useless waste rock become economic; it even means that old waste dumps and tailing piles become new mines... Metals mined become part of a permanently recycling and constantly growing stock.[8]

[8] Margot Wojciechowski, "Canadian minerals industry: strength in international trade," 45th Montebello Conference; Montebello, Québec, 24 October 1991.

Those making the "scarcity" arguments focus on what they know of the discovered parts of the mineral world; they ignore, deliberately or otherwise, the potential of mining's vast "terra incognita." Also ignored is the fact that, unlike organic commodities, mineral commodities are not consumed when they are mined and used. Instead, "scarcity" theorists point to well-founded concerns about the depletion of known reserves, lower ore grades, and dying single-industry towns – issues that are highlighted by the media. Yet, given the virtually untapped resources of many parts of Canada, particularly the North, we have just scratched the surface of our mineral endowment. Opening up these new regions, however, is fraught with difficulties, some political, others economic and technical.

The difficulty lies in discovering, developing, and mining economically viable deposits. Unlike manufactured goods, mineral commodities are fungible, are undifferentiated in terms of quality, and are competitive only on the basis of cost. Mineral producers and investors will take money and jobs elsewhere if the costs of exploration and production prove to be too high in Canada.

Investment in the mineral supply process, as in any other economic activity, is determined by the expected rate of return. Economic projections must consider all the stages of mining, from primary exploration to production of mineral commodities. In the mineral exploration stage, mineral economists Brian Mackenzie and Michael Doggett point out, "all finding, development, and production activities represent controllable choices. This is the only time a mining company is not committed to particular programs, projects, or mines."[9] It is at this stage, the authors suggest, when there are no sunk costs, that corporate exploration decisions are particularly sensitive to uncertainty and changes in government policy. A large part of the political uncertainty can be attributed to changing taxation policies, changing environmental and health and safety regulations, the length and uncertainties of the environmental review processes, and land use policies.

[9] Brian W. Mackenzie, and Michael Doggett, *Economic Potential of Mining in Manitoba: Guidelines for Taxation Policy*, Kingston: Centre for Resource Studies, Queen's University, 1992, p. 7.

Currently, for example, the industry is deeply worried about the designation of "protected" areas and the unresolved state of Aboriginal land claims. The "legal limbo" surrounding the land affected by the claims process means that, even where there is no legislation prohibiting exploration, neither are there any guarantees of access or of mineral rights.[10] A large portion of the country has been subject to Aboriginal land claims for many years, even decades. While the claims remain unresolved, it is very difficult to attract

[10] Blair Crawford, "This land is whose land?," *Northern Miner Magazine*, May 1990, pp. 33-34.

capital to these regions for high-risk discovery and development projects. Controversies over land access, including uncertainty over the meaning of mineral title, add to the pressures that drive mining investment out of Canada to countries where the investment climate is more attractive.

Many will point out that concerns with land claims and the environment are by no means confined to Canada. Other resource-dependent countries such as Australia must wrestle with similar issues.[11] Developing nations, too, must come to terms with national and international pressures to protect the environment. Knowing that in some ways mineral developers in other countries are in the same boat does little to alleviate concerns that many exploration dollars are going abroad. In choosing where to explore for minerals, the investor must consider the overall investment environment, which includes the availability of a skilled workforce, the accessibility of high-grade ore deposits, labour and production costs, and regulatory considerations. Canada is now experiencing a major downturn in exploration activity, while countries in Central and South America, Africa and Asia are aggressively promoting investment. Canadian companies are major investors in these areas.[12]

[11] "The problem of access to land," *Australian Mining Industry Council*, April 1988, pp. 1-6.

[12] Anthony Andrews, "PDAC Perspectives," *The Northern Miner*, 8 July 1991, p. 4.

Minnova Inc. is an exploration, development and mining company that produces copper, zinc, gold and silver from its Canadian mining operations. Its president, David Watkins, identified several of the reasons that mining companies decide to move to frontier areas within Canada and selected areas outside Canada:

> Companies want to focus on areas with the best potential to be endowed with large, high quality mineral deposits; and the largest and richest deposits will be the first detected and developed. There is a better chance that these will be found in relatively unexplored areas.... On the push side, we see in Canada substantially increased risk to doing business and diminished return through increasing levels of taxation, increasing regulation and decreasing land availability.... Management of the issues of regulation, taxation and land availability must begin with the very first steps of exploration either in Canada or any other political jurisdiction.[13]

[13] David Watkins, "Back to Basics: Managing the Risks to Reap the Rewards," Canadian Institute of Mining and Metallurgy, Mineral Economics Committee 7th Mineral Economics Symposium, Toronto, 16 January 1992.

Exploration strategies which move away from established mining districts into remote, less explored areas in Canada can pay off in terms of jobs and economic development. For example, Minnova has been facing declining reserves in its currently producing mines. Rather than continuing to follow the standard industry practice of further exploration around known large deposits, however, the company is shifting its exploration to frontier regions. This approach could lead to more discoveries such as its promising Izok Lake copper-zinc deposit in the Northwest Territories. Canada must have an attractive investment and political climate if it wants to induce more exploration approaches of this kind.

In sum, the mineral industry is a significant and productive contributor to the Canadian economy. Scarcity theories predicated on assumptions about the depletion of our natural endowment do not take into account the renewability of the resource base. Nevertheless, the Canadian industry is still concerned about the shrinking stock of mineral reserves. The identification of new mineral deposits in Canada depends not only on geological, economic and technical variables; it also depends on a political and regulatory environment which is evolving in ways that are already discouraging investment in long-term development projects.

3. Political Economy and Resource-Dependency

Some political economists are not persuaded that Canadian competitiveness should continue to be based on primary industries rather than secondary manufacturing or the service sector. There is a sizeable body of literature which suggests that an economy which rests strongly on staples production will inevitably lead to economic decline. Brooks and Stritch summarize the arguments of these political economists:

> The traditional stereotype of Canadians as "hewers of wood and drawers of water" still persists in the minds of many people, and from this perspective, it is commonly argued that Canada is qualitatively different from other industrialized countries. We are sometimes seen as a resource hinterland with a weak and underdeveloped manufacturing sector that relies too heavily on exports of raw materials and not heavily enough on finished products. In this view the sectoral balance of the economy is distorted to such an extent that we scarcely qualify to be called an industrial country. It is also claimed that this imbalance is getting worse and that Canada is actually undergoing a process of "de-industrialization".[14]

[14] Stephen Brooks and Andrew Stritch, *Business and Government in Canada*, Scarborough: Prentice-Hall Inc., 1991, p. 90.

Brooks and Stritch reject the contention that Canada's staples-based economy is atypical among industrialized nations. Among other things, the authors suggest that the historic pattern of employment and GDP in Canada is characteristic of most advanced capitalist nations and has broad structural economic similarities. Furthermore, the authors point out that, although the tertiary sector appears to be the fastest-growing sector, it is not self-sustaining but dependent on a viable goods-producing sector.[15]

[15] *Ibid.*, pp. 97, 101.

One can also argue that primary industries contribute substantially to manufacturing and services activities in Canada. Access to lower-cost raw resources resulted in the development of secondary industries, which were shaped in response to our resource-dependent economy. The obvious examples are transportation facilities or spin-off businesses which accompanied resource development. Less well-known examples include new tertiary industries related to information technology. For example, the Canadian satellite industry, which has achieved that peculiarly Canadian label, "world-class," was developed to support many resource-related activities, including mobile communications, remote sensing for resource management and surveillance, weather forecasting, search and rescue, and navigation.[16]

[16] W.M. Evans, "Canada's Space Policy," *Tracing New Orbits: Cooperation and Competition in Global Satellite Development*, Donna A. Demac, ed., New York: Columbia University Press, 1986, p. 131.

There are many, however, who do not support the view that secondary manufacturing necessarily depends on domestic primary inputs. Rather, it has been claimed that such assertions were more persuasive in the early 1970s when there was a belief that raw material shortages reflected permanent conditions of global scarcity and firms quickly moved to secure supply.

Robert Young *et al.* argue that "[i]n recessionary times, it is not access to resources that counts, but access to markets, and this renders primary industries dependent on the fortunes of their downstream customers rather than vice versa."[17] One has to be careful in accepting such a generalized statement at face value because access to resources still is extremely important to secondary industry, particularly if one considers the issue from a regional perspective. For example, Prince Edward Island is not noted for its mining industry, yet sand and gravel are very important to the island economy. The cost of transporting these materials to the island would be very high. The same holds true throughout the country for many minerals, particularly those used for building materials or fuel.

[17] R.A. Young, Philippe Faucher, and André Blais, "The Concept of Province-Building: A Critique," *Perspectives on Canadian Federalism*, R.D. Olling and M.W. Westmacott, eds., Scarborough: Prentice-Hall, 1988, p. 149.

Nevertheless, there is no question that the mineral industry faces many competitive threats, especially during a recessionary period. Dale L. Hull notes that, during the 1970s, concerns about scarcity promoted greater mineral investment and production worldwide. As a result, a much larger share of the world mineral and metal production was undertaken in other countries, including those in the developing world. The subsequent downturn in economic growth resulted in excess supply and lower prices.[18]

[18] Dale L. Hull, "Factors affecting the performance of the Canadian minerals and metals industry," *Raw Materials Report*, Vol. 5, No. 3, 1987, p. 7.

In Canada, the recession of the early 1980s was shortly followed by another, persistent recession in 1990. In 1991 production values declined significantly from 1990 (see Table 1). Exploration expenditures and employment levels also declined. Young's argument that primary industries are dependent on their customers remains valid.

Table 1. Canadian mineral industry value of production, 1990 and 1991

	1990 ($ millions)	1991 ($ millions)	Change (%)
Metals (including uranium)	12,500.0	10,425.3	−16.6
Nonmetals	2,492.2	2,250.5	−9.7
Structurals	2,796.0	2,286.7	−18.2
Total Nonfuels	17,788.2	14,962.4	−15.9
Coal	1,823.7	1,905.9	4.5
Total	19,611.9	16,868.3	−14.0

Source: Mineral Policy Sector, Energy Mines and Resources Canada, and The Mining Association of Canada, *InfoMAC*, June 1992, p. 3.

As the composition and demands of markets change, the mineral industry must also be prepared to apply a diversity of strategies to retain its market share. Many critics believe that the Canadian industry is ill-prepared to do so. According to Peter McGeer,

> To find success in today's world, a corporation must either be a low-cost producer of a commodity product or it must corner a market niche with a successful dominant product achieving an above-average profit market. Two reasons, however, make it difficult to maintain a position as a low-cost producer of a relatively undifferentiated product such as ores or primary metals. First, there are often only very small differences in production costs. Second, as pointed out earlier, many materials and metals produced by Canada face a major threat in the form of growing production in developing countries.[19]

[19] Peter McGeer, "The Challenge of New Materials," *Prospects for Minerals in the 90s*, Peter R. Richardson and Renka Gesing, eds., Kingston: Centre for Resource Studies, Queen's University, 1988, p. 99.

Besides competition from low-cost producers, another significant threat to the mineral industry has been the introduction of new materials. New materials fall into three major classes: metals, alloys, and metal matrix composites; ceramics and ceramic matrix composites; and engineering polymers. These materials are competing for market share traditionally dominated by minerals and commodity metals. New metals represent improvements in strength, durability, and versatility over the traditional metals. Ceramic compounds are used in electronic, optical and magnetic devices, as well as for cutting tools, drills and engine parts. Engineering polymers are increasingly used in automobiles, aircraft and other applications traditionally served by metals.[20]

[20] Charles A. Sorrell, "New Materials: Technology Overview," *The New Materials Society: Opportunities and Challenges*, Volume 2, U.S. Department of the Interior/Bureau of Mines, 1990, pp. 4.1-5.13.

There has been an overall decline in the intensity of use for minerals and metals. Dale Hull noted that improved technology has enabled secondary industries to reduce the metal content of the products through downsizing, more efficient use of raw resources, and the use of substitutes. The growth of knowledge-based industries and services has also led to lower demand.[21]

[21] Dale L. Hull, *op. cit.*, p.7.

In response to these threats, various marketing initiatives have been proposed. Some feel that industry's traditional preoccupations with supply must shift to a recognition that demand is an equally important part of the equation. Moira Jackson observes that

> You can sell something only if you have a customer, and the new reality in the metals industry is that the customer now has a great many choices. What's more, the competition is out there telling current and former users of metals what can be done with ceramics and polymers instead. Manufacturers do not have a vested interest in using any particular material.... If they can maintain quality and save on costs, they may well switch to a cheaper material.[22]

[22] Moira Jackson, "The Status Quo Is Not an Option," presented at the Canadian Institute of Metals and Metallurgy 92nd Annual General Meeting, Ottawa, 6-10 May 1990, pp. 6-7.

The author offers an array of strategies for pursuing these markets, with one of the fundamental requirements being an active R&D department that can develop creative strategies for product and market development, particularly during a period of decline or recession.

New opportunities for the use of minerals and metals may develop, along with technology-driven changes to the marketplace. Nickel, for example, could be in high demand if there is mass production of battery-powered electric vehicles by the end of this century. Nickel-containing rechargeable batteries are also used for lap-top computers.[23] Effective marketing strategies are important for companies to maintain their own niche in an increasingly diversifying market. Creative and dynamic market approaches may also help reverse public and government perceptions that mining must necessarily be replaced with other wealth-generating activities.

[23] Rick Haliechuk, "Electric cars to spur nickel use, Inco says," *The Toronto Star*, 23 April 1992.

4. Politics and the "Embedded State"

As discussed above, the mineral industry has often looked to markets and economic analyses for explanations and solutions for its competitive difficulties. These factors, however, provide only partial answers. The industry must also pay attention to the public policy environment, which is beginning to seriously affect its ability to remain competitive. Paying attention means going beyond issues of taxation – an area most easily identified with a company's bottom line – in order to recognize the potential for systemic social and political forces to affect the long-term interests of the mineral sector. Moreover, there is an industry-wide awareness of "government-mandated costs," but little recognition or understanding of the role governments must play to regulate the economy and to provide the stable and healthy political and social environment essential to a prospering economy.

In recent decades, state-society relations have become increasingly intertwined. Alan Cairns refers to this phenomenon as the "embedded state" and suggests that the Canadian federal state "has become a sprawling diffuse assemblage of uncoordinated power and policies, while the society with which it interacts is increasingly plural, fragmented and multiple in its allegiances and identities."[24] As the "embedded state" develops more fully, many groups are increasingly able to exercise what amounts to a veto on the policy process. The federal political structure facilitates a policy environment which includes both competing producers and consumers, and competing governments. Vetoes on government policy are achieved through the ability of various groups to recruit corporate and government opponents. The ability of groups to capitalize on the fragmented nature of political authority does not bode well for the mineral resource sector. Given this policy environment, the fact that the public and many policy-makers seem indifferent to the need for continuing competitiveness of the mineral sector is a fundamental problem not only for the industry but for Canada as a whole.

With a tough competitive climate and escalating costs to deal with, the industry has not been benefitting from government policies as it did in earlier years. In the past, the industry thrived under supportive government policies. Demand for the minerals was high and development was encouraged. Now, however, the industry must compete with low-cost producers from other countries and needs government to provide a competitive investment climate. Getting that support may be difficult.

Land access questions, such as those raised by the proposed Windy Craggy development in northwestern British Columbia, serve to illustrate the growing conflict between the interests of industry and other groups. The industry must have access to large tracts of land in order to explore for new economically viable deposits. Other groups are now making competing claims on many of those areas. Cairns' embedded state is "tied down by multiple linkages with society" limiting its manoeuvrability.[25] In this environment, the mining sector needs public support and awareness of its basic requirements. Without that support, the mining sector's prospects are gloomy.

[24] Alan Cairns, "The Embedded State: State-Society Relations in Canada," in *State and Society: Canada in Comparative Perspective*, Keith Banting, Research Coordinator, University of Toronto Press in cooperation with the Royal Commission on the Economic Union and Development Prospects for Canada and the Canadian Government, Toronto: Minister of Supply and Services Canada, 1986, p. 55.

[25] *Ibid.*, p. 54.

Interest group studies, public policy and institutional analyses all point to the influence of the public in shaping government decision-making. As Cairns and Williams state,

> The ever more encompassing coverage of the planet by the state system, now extending to the oceans and the stratosphere, has been accompanied by a tightening of the links between citizens and individual governments. In the Western world increasing global interdependence has coincided with a general enhancement of citizenship as a private status invested with rights and duties, relative to more private definitions of self.[26]

Cairns and Williams suggest that, in contemporary society, a plurality of identities has emerged with groups enjoying "considerable success in expanding discussions of human rights and in securing positive government responses through a wide range of public policies as well as through the legal and constitutional validation of various rights claims."[27]

Careful study is needed to analyze the specific role of individuals and interest groups in the formation of public policy. As Coleman and Skogstad point out, it has only been fairly recently that we have seen interest group research expand to "include the different roles groups might assume in the policy process."[28] For the mineral industry, the inclusion of Aboriginal or environmental groups into the decision-making process means the slowing down, or halting, of the approval process for exploration and development permits, and increasing costs related to time delay and extra studies. In addition, pressure to reduce the deficit and introduce effective measures to protect the environment will constrain governments' abilities to assist the industry in meeting the requirements of a growing number of regulations.

A lengthening list of legislative actions provides testament to rising public expectations that the state will safeguard the welfare of its citizens. This includes the demands of Canadians for a safe, healthy, working and living environment. Expectations and expenditures continued to grow throughout the 1980s and into the 1990s. So too, did the federal deficit. The recessions of the early 1980s and 1990s contributed to pressures on government resources to meet growing public demands. Under these circumstances, it is difficult for governments to formulate strategies which can help industries deal with their competitive problems.

Yet if the mineral industry is to continue to be competitive, it must have supportive, efficient and long-term public policies. Historically, this had not been a problem. Policies were geared toward the development of resources, an essential part of Canada's staples-based economy. Furthermore, as H.V. Nelles explains, the early stages of mining regulation were primarily based on "a question of obtaining an adequate public return from the development of what was thought to be a public property."[29] Marsha A. Chandler describes the early relationship between state and private interests:

> The traditional arena that gave rise to these policies can best be characterized as narrow and clientele-based, a symbiotic relationship between the provincial government and private-sector interests. Organized along sectoral lines, government departments that dealt with mining interests did not have to compete among themselves; nor were there any significant challenges from outside.[30]

[26] Alan Cairns and Cynthia Williams, eds., *Constitutionalism, Citizenship and Society in Canada*, Toronto: University of Toronto Press, 1985, p. 5.

[27] *Ibid.*

[28] William J.D. Coleman and Grace Skogstad, eds., *Policy Communities and Public Policy in Canada: A Structural Approach*, Toronto: Copp Clark Pitman Ltd., 1990, p. vii.

[29] H.V. Nelles, *The Politics of Development: Forests, Mines and Hydro-electric Power in Ontario, 1849-1941*, Toronto: MacMillan, 1974, p. 155.

[30] Marsha A. Chandler, "The Politics of Provincial Resource Policy," *The Politics of Canadian Public Policy*, Michael M. Atkinson and Marsha A. Chandler, eds., Toronto: University of Toronto Press, 1983, p. 45.

By the late 20th century, however, the industry was facing significant challenges. Responding to economic changes in the early 1980s, the mineral industry made tremendous improvements in productivity and increased its production levels. Nevertheless, the industry's relative economic – and, therefore, political – impact has decreased; it does not contribute the same share to provincial revenues that it once did, nor does it generate as many jobs. As a result, its relative importance on provincial and federal government agendas has diminished. As George Miller, president of The Mining Association of Canada stated, "Although its [mining's] share of GDP has dropped, we've held our own in quantity of production while the Canadian economy has diversified around us."[31] It should be noted, however, that as a driver of the economy, the decline of the primary sector will adversely affect the business service sector, including business-related tourism, transportation, ports, dock and storage, equipment, financial and commercial business, etc.

[31] Cited in Alexander Ross, "Cut, and Keep Running," *Canadian Business*, June 1992, p. 102.

Economic challenges were not the only changes experienced by the mineral sector. In the early years of economic development, there was relatively little competition for the Crown land that was leased to the primary industries. However, other interests, particularly environmental and Aboriginal groups, are now placing competing claims on these lands and on the exploitation of natural resources. These groups value Canada's natural resources for something other than their economic worth, and they are pressuring both the federal and provincial policy-makers. Aboriginal groups are claiming lands that they view as their heritage. Environmental groups are concerned about potential ecological damage from resource development. These groups therefore demand a voice in determining how natural resources are managed. Most stakeholders would like to see a long-term and efficient planning approach to the management of our natural resources. This goal, however, is difficult to achieve because of the pluralist federal structure of the Canadian political system which lets both environmental and business groups play off one government against the other. According to Robert Presthus, "This peculiar version of the 'separation of powers' enables interest groups to penetrate and counter the national system very effectively by providing alternative provincial bases of power and avenues of access for such groups."[32]

[32] Robert Presthus, *Elites in the Policy Process*, London: Cambridge University Press, 1974, p. 27.

In the case of resource development, environmental groups can block development projects by appealing to federal agencies which have jurisdiction over environmental issues. In January 1992, for example, the Supreme Court of Canada made a historic ruling which required that federal environmental reviews be mandatory in the case of large projects such as Alberta's Oldman River Dam. The Court dismissed an appeal launched by Alberta opposing federal "intrusion" into provincial jurisdiction over resource management and land use. Ottawa has constitutional authority for Aboriginal peoples and lands, fisheries and navigable waters. As a result of the Oldman Dam decision, all large-scale projects which have an impact on any of these areas must now be subject to federal environmental assessments. Big projects typically must pass assessments conducted by both levels of government. Unless provisions for a joint federal-provincial environmental assessment process are effectively implemented, the time-frame for project approvals could be lengthened considerably.

The division of powers can be used at times to the advantage of certain interest groups. Nevertheless, if the goal is to achieve issue resolution, then intergovernmental conflicts, particularly at the most senior levels, can lead to confrontation politics and result in deadlock.[33] The uncertainty caused by federal-provincial disputes and/or duplication in the environmental policy arena, and burgeoning environmental regulations (sometimes referred to as the "moving goal-post scenario"), are adding significantly to industry's costs. So too with the rapidly growing number of health and safety regulations. Three recent examples will illustrate: the 1988 federal Workplace Hazardous Materials Information System (WHMIS) requires employers to provide workers with training in the safe handling of hazardous materials in the workplace; in British Columbia, stringent health and safety and mine reclamation codes were passed as part of the revisions to the provincial Mines Act 1990; in the Northwest Territories, an environmental bill of rights was passed into law in November 1990 and similar legislation is pending in several other jurisdictions. There are numerous examples of such initiatives which reflect a political awareness of the public's concern for the environment, and a recognition of the rights of individuals to a safe and healthy environment. The industry maintains that it recognizes those rights as well. The shifting regulatory environment, however, makes it difficult for them to achieve goals which are undefined, nebulous and subject to political compromises and trade-offs.

[33] A. Paul Pross, *Group Politics and Public Policy*, Toronto: Oxford University Press, 1986, p. 244.

Structural forces within the Canadian political system have served to exacerbate tensions and to impede efforts to achieve a compromise among opposing interests. Forces such as overlapping federal-provincial responsibilities, the entrenchment of the Charter of Rights and Freedoms, and incremental policy-making all serve to obstruct the drafting of regulations that would satisfy either environmental or business interest groups. Our segmented political system provides various groups with multiple channels to influence the policy process – it also discourages development of an effective, coordinated response to many competing concerns.

Land access issues highlight the difficulties inherent in the Canadian federal system, as governments attempt to formulate acceptable policy approaches to resource development. Although all provinces are confronted with similar issues, some of the most contentious areas are found in British Columbia. In British Columbia's resource-dependent economy, the $3-billion-per-year mineral industry (excluding petroleum and natural gas) produces commodities which constitute over one-fifth of British Columbia's total exports and generates considerable spin-off economic activity. Yet many environmental groups are very distressed about policies which would permit mineral exploration and development in wilderness or park areas. A review of policy initiatives in British Columbia over the last few years reveals that these groups are having a significant impact on policy formulation.

In 1988, following vocal public opposition to resource development in Strathcona Park on Vancouver Island, the B.C. cabinet accepted a recommendation to ban resource development in the park. Subsequently, the government suspended the issuing of permits for exploration activities in all provincial parks in order to reconsider the whole issue. Later that year, the government announced its new policy prohibiting mineral exploration within class A provincial parks. As a result of this moratorium, Cream Silver Mines Ltd. filed a damage claim in the British Columbia Supreme Court. The company has 106

mineral claims in Strathcona Park, has been operating within the park boundaries since 1966, and has spent over $1 million on exploration. In 1987, Cream Silver stock traded at $3.45; after the moratorium, it fell to $0.15.[34] In November 1991, a B.C. Supreme Court judge awarded Cream Silver an undetermined amount (to be established at a future date) in compensation for the loss of its claims.

Concessions were made to mining interests in the late 1980s. In 1988, approximately one million hectares in 28 recreation areas were opened to time-limited exploration under the new *Mineral Tenure Act*. In 1989, the B.C. government removed two areas containing mineral deposits at Lindquist Lake and Mt. Alcock from the Provincial Parks designation, establishing them instead as Recreation Areas to allow for their assessment.[35] However, Parks Plan '90 was announced in June 1990 for the purpose of drafting a provincial land use plan. The Plan identified over 100 areas as potential candidates for park designation. During the ensuing public consultation, meetings were held in an attempt to accommodate many competing views in the province including those of mineral developers who were alarmed by vast areas recommended for withdrawal from resource development.

In response to public concern, British Columbia and other provinces established stringent new mine reclamation guidelines requiring companies to post preproduction bonds as security to ensure that mines will not be abandoned, leaving the public to pay the costs of reclamation and environmental damage such as that associated with acid-rock drainage.[36]

The 1991 provincial election in British Columbia saw the New Democratic Party elected to form a new government. During the election campaign, the party stated its support for integrated, multiple use of British Columbia's land base with the exception of specifically designated parks. It also supported the 1987 recommendation of the World Commission on Environment and Development (Brundtland Commission) to expand protected areas to 12 percent of the total land mass (a position also advocated by the federal government's Green Plan). The party also said that it would not allow mining or exploration on land designated for park or wilderness use.[37]

Industry representatives objected to this policy, suggesting that protection means defense against danger or injury, not isolation or removal.[38] They claim that exploration itself has a relatively benign effect on the environment and that affected land is easily restored to its original condition. Moreover, it has been estimated that only one prospect in 5,000 reaches the production stage. Further, they point out, mining itself occupies less than one-tenth of one percent of the province's total land base. They also argue that, as it is difficult to predict what parcels of land will have the most potential for economic mineral development, land should not be set aside for a park or wilderness area. Many northern or alpine regions may be potentially high in mineral resource value. Prospecting, however, remains an inexact science in spite of the vast array of regional mineral resource appraisal methods which are employed to help determine the location of the most economically promising deposits. Tools include information technologies such as remote-sensing satellite technology and computerized mapping generated from geophysical and geochemical data. While such geographic information systems are valuable, they do not replace incremental exploration work, nor can they adequately forecast the market environment.[39] Scientific developments in theories of ore formation,

[34] "Mining Company Sues B.C. Government," *The Globe and Mail*, 13 July 1989. See also, Mary Louise McAllister and Tom F. Schneider, *Mineral Policy Update: 1985-1989*, Kingston: Centre for Resource Studies, Queen's University, 1992.

[35] British Columbia, Ministry of Energy, Mines and Petroleum Resources, *Mineral Market Update*, Vol. 2, No. 1, January 1990, p. 17.

[36] "Making the Public Aware," *Mining in British Columbia*, January/February 1990, p. 27.

[37] Mining Association of British Columbia, "Newsletter: Mining in British Columbia," Special Election '91 issue.

[38] Jack Patterson, "Multiple use requires clear leadership," *The Northern Miner*, 3 June 1991, p. 4.

[39] "B.C. land-use plan sparks new round of confrontation," *The Globe and Mail*, 13 February 1991, p. A5.

improvements in exploration or recovery technologies, or changes to the regulatory or market environment could render a formerly worthless deposit valuable.

Calls for designating land solely to be used as wilderness preserves pose a particular threat to the mineral industry because of its unique requirements to explore large areas of land in order to discover very few new mineral deposits. These vast tracts of land must be examined and re-examined before smaller targets are selected for further examination as the search narrows. A great deal of money goes into the early high-risk exploration stage. Mackenzie *et al.* estimate that the costs of exploration expenditures in Canada have averaged about $50 million per economic discovery.[40] One mineral industry representative suggests that the public and governments are not attuned to this difficulty:

> A company in the manufacturing sector can build a new plant where it wants to, and invests relatively little before construction begins, that is, substantial investment does not take place until after the environmental assessment process. For someone with this model in mind, it is difficult to understand that a mining company cannot initiate the environmental assessment process until after the expenditure of a substantial sum for finding and delineating the ore body. That one "find" may not be located conveniently for wildlife or scenic spots. From the company's perspective, the one "find" must pay back for the cost of all the "misses".[41]

[40] Brian Mackenzie, Michel Bilodeau, and Michael Doggett, *Mineral Exploration and Mine Development Potential in Ontario: Economic Guidelines for Government Policy*, Kingston: Centre for Resource Studies, Queen's University, 1989, p. 67.

[41] Justyna Laurie-Lean, "Environmental Risks," The Mining Association of Canada, Canadian Institute of Mining and Metallurgy Mineral Economics Society, "Back to Basics: Managing the Risks to Reap the Rewards," 7th Mineral Economics Symposium, Toronto, 16 January 1992.

The Windy Craggy Debate

One issue which casts land use debates into sharp relief is a confrontation over a potential development in northwestern British Columbia. Geddes Resources Inc. wishes to develop an enormous copper deposit (with by-product cobalt, gold and silver) located in the Haines Triangle of British Columbia, 190 kilometres southwest of Whitehorse, Yukon. The Windy Craggy Mountain, the site of the proposed mine, is located at the confluence of the Tatshenshini and Alsek Rivers. Geddes Resources claims that the Windy Craggy deposit, if developed, could produce over 165 million tonnes of ore over 50 years. With the exhaustion of ore reserves and subsequent closure of other Canadian copper mines, the industry and resource communities need new mines.

The company has plans to minimize the impact on the environment. For example, traffic would be limited on 30 kilometres of roadway running through the river valley by flying in its staff for rotational work-shifts. Fuel and the copper concentrate (as a slurry) would be transported through pipeline rather than by truck. Waste rock would be placed out of sight in an acid rock drainage lake (formed between two dams and designed to withstand earthquakes).

On the other hand, environmental groups and those who make their living from conducting wilderness rafting expeditions do not wish to see the deposit developed. Though a whole new discipline is emerging around the concept of environmental accounting, it is still impossible for the public to place a price on its value of the natural environment. Environmental groups produce their own array of concerns when examining the proposed development and question the reliability of the company's statistics and plans for minimizing environmental

damage. In addition to their reservations about possible acid mine drainage, opponents to the project voice their concerns about the earthquake safety of the tailings dams, the possible impact on the largest eagle sanctuary in the world (the Chilkat Bald Eagle Reserve) and on the grizzly bear population. The area is surrounded by American and Canadian national parks – Glacier Bay and Wrangell-St. Elias in Alaska, and Kluane in the Yukon. Environmental activists contend that allowing the project to go ahead "would devastate world-class wildlife populations ... poisoning this wild and incredibly biologically rich place."[42]

[42] Western Canada Wilderness Committee, "Wild Campaign Educational Report," co-published with Tatshenshini Wild, Vol. 11, No. 2, Winter-Spring 1992.

Thoughtful environmentalists may be aware of the importance of resources to a nation's economy, to the generation of employment, and to regional development. As lobbyists, however, their role is not to present the industry's perspective, but to ensure that the environment is adequately protected.

In the Windy Craggy dispute, activists are drawing on a huge network of North American environmental groups, including the Western Canada Wilderness Committee, the Sierra Club, the U.S. National Parks Conservation Association and World Wildlife Fund. The issue has interjurisdictional dimensions which include the governments of Alaska, British Columbia, Yukon and Canada, with environmental implications for national parks and aquatic life in the United States and Canada. Media attention has been drawn to support the effort to protect the Tatshenshini wilderness. The president of the Canadian Parks and Wilderness Society claims,

> The Tatshenshini wilderness is unique, and more precious than precious metals.... It's among the densest grizzly bear habitats in the world... There are bald and golden eagles in enormous abundance. It's scenically astounding with big glaciers coming down to the river at 1,000 feet of elevation – one of the wildest I've ever seen.... No compromise is possible on this open pit mine.[43]

[43] "Wilderness brawl looms," *The Calgary Herald*, 15 October 1991, p. B1.

If decision-makers determine that the area should be left undeveloped, then the issue of compensation to the company will have to be broached. From the mineral industry's perspective, the issue goes beyond Windy Craggy because the whole Haines Triangle is thought to be potentially rich in minerals.

Recent changes to environmental review processes as they are applied to Windy Craggy and other proposed developments demonstrate that environmental lobbyists are having an impact on the policy process.

Geddes Resources first submitted its Stage I Environmental and Socio-economic Impact Assessment Report for the Windy Craggy project in January 1990. After a project review conducted by provincial and federal agencies, the provincial Mine Development Steering Committee rejected the plan on the grounds that it did not adequately address concerns related to acid rock drainage or prevention of acid generation. The company submitted a revised mining plan at the end of 1990.

In August 1991, British Columbia established a new Mine Development Assessment Process (MDAP) which requires companies to conduct environmental and socio-economic studies before they are issued a Mine Development Certificate.

Along with provincial requirements, Geddes Resources found itself facing international pressures because the Windy Craggy project has transboundary implications. On 2 April 1992 a resolution was introduced in the U.S. House of Representatives which stated that the Tatshenshini is of international significance, and that the area was to be referred to the International Joint Commission for review. On 6 April 1992 the British Columbia government announced that, before any decisions are made, a full range of options for land and water use for the Alsek and Tatshenshini areas must be considered. If mineral development is among the preferred land uses, then a thorough environmental review (including a formal public hearing) of the Windy Craggy project would resume.[44] In July, it was announced that Stephen Owen, chairman of a B.C. commission on resources and environment would spend the next year studying the Tatshenshini Valley and make recommendations to government about its future use. The Windy Craggy Project is subject to the new MDAP, the Environmental Assessment and Review Process in Canada and the National Environmental Policy Act in the United States.[45]

Other projects, including Mt. Polley, Eskay Creek and Stronsay, are also awaiting approval under the MDAP. Attempts to streamline the mine approval process are difficult to achieve as the number of stakeholders continues to grow. Companies are concerned that delays and uncertainty in the review process will encourage investors to look for opporunities offshore. The potential for economic viability of the Windy Craggy copper project depends heavily on costs and world prices. Uncertainty about future prices does pose a serious threat to companies with deposits like Windy Craggy that are large, but remote and comparatively inaccessible and may take a long time to reach the production stage. Environmental groups, therefore, gain support for their argument that it makes no sense to damage "a world-class Tatshenshini wilderness" for a mine that may be only marginally economic given low world copper prices.[46] Companies like Geddes respond by claiming that their projects will be economically viable over the long term – provided that there exist an attractive investment climate, stable regulations and tax regimes, and a coordinated mine development review process with a built-in time frame.

[44] Energy, Mines and Resources Canada, "Windy Craggy – A Development Proposal with International Transboundary Environmental Impacts," p. 15.

[45] "B.C. sets us land study," *The Globe and Mail*, 22 July 1992.

[46] Western Canada Wilderness Committee Educational Report, "Tatshenshini: Ice Age Wilderness," Vol. 9, No. 1, Spring 1990.

5. The Public and Resource Values

If, as the "embedded state" thesis indicates, the public is increasingly setting political agendas, then it is important to consider how the general public views natural resource use. Powerful pressure groups often portray themselves as representing the general public's interest. As the Windy Craggy case illustrates, land use debates are often reduced to wilderness versus development. Further, according to one analyst, resources in general have been managed according to biological and commodity concerns, neglecting sociological considerations. As a result, the question of public values and perceived needs has not been adequately addressed. The public's perception of resources is more complex and multi-faceted than the debates in the media would have one believe. In his analysis of North American values regarding natural resources, Alan Ewart points out the emergence of a set of attitudes in North America, including

- a *reduced* level of understanding, coupled with an *elevated* level of interest in natural resources, particularly forests and wildlands;
- a growth in the appreciation that forests and wildlands are a source of noncommodity values such as wildlife, recreation, water and nonurban experiences; and
- a growing reluctance to accept professional authority as objective or even accurate.[47]

[47] Alan Ewart, "Wildland Resource Values: A Struggle for Balance," *Society and Natural Resources*, Vol. 3, October-December 1990, p. 386.

Ewart further notes that resource managers are often scientifically oriented and believe that public and social considerations can be addressed with common sense. Others have argued that scientists "often view the social sciences as either unnecessary or trivial." Because of these biases, the argument goes, resource managers are often "ill-prepared" to deal with the new demands of the public.[48]

[48] *Ibid.*, p. 386.

For their part, as stated above, mining companies, preoccupied with competitive concerns, have not been prepared to deal with changing public attitudes and values. If this depiction is accurate, the combination of scientifically oriented resource managers coupled with a competitively oriented industry can lead to increasingly negative public perceptions about the roles of both industry and governments in managing resources. This could generate problems of legitimacy, if decisions regarding natural resources are not seen to benefit society as a whole.

One widely held public perception rests on a belief that, if an area is subject to mining, logging, or drilling, then other activities or uses (biodiversity, cultural, aesthetic, etc.) would be excluded. Many believe that, while natural resources and wilderness areas belong to the public, the benefits of resource development such as mining accrue to only a select few.[49] The only beneficiaries, in this view, are shareholders. If the land remains undeveloped, it is available to everyone.

[49] *Ibid.*, p. 390

Radical interpretations of the role that major corporations play in our society further fuel popular notions that, as industry benefits, the public will suffer. An example of such a perspective is included in the following depiction of industry.

> INCO is a multinational mining company active in northern Ontario. They are a profitable enterprise and considered successful in the corporate world. Their success, however, has been built on the destruction of over 900 square miles of whitepine forest; the production of war materials that were sold to both sides during the first and second world wars; at best, ignoring state terror in Guatemala and Indonesia during the time the company was expanding there; and working conditions that have resulted in cancer, crippling back injuries, white-hand or deafness for the majority of its workforces. It's [sic] "superstack" is the single largest source of acid rain in North America... As a response to public pressure, the company has now developed a method of reclaiming the sulphur dioxide that it produces from the air; it wants to use it for fertilizer, which is almost as destructive to the environment.[50]

[50] Joan Newman Kuyek, *Fighting for Hope*, Montreal, New York, Black Rose Books, 1990, p. 6.

One hopes that the public is somewhat more objective and accurate than the author of the above passage in its understanding of the positive and negative impacts of industry on human activity. If, however, as Alan Ewart suggests, the public has an elevated interest in natural resources but a declining understanding of them, and, further, a belief that resource activities benefit only a select few, it will be difficult to recruit generalized public support for continued mineral development.

It is significant that urban majorities have been sensitized to environmental concerns through the educational system and the media, yet they take for granted the benefits of mineral products. They definitely are not attuned to issues related to the economic importance or the competitive position of the Canadian mineral industry. Many Canadians, if they think at all about mining, have a view rooted in history. They perceive it to be non-renewable, in decline, a dangerous occupation, and environmentally destructive. Given the growing influence of public interest groups on the policy agenda, this perception is something that the industry cannot afford to ignore.

The public may be uninformed about the contribution of the mineral industry, but it is not unaware of its potential to damage the environment or its occupational hazards. The industry's historic reputation for poor environmental practices is common knowledge, while its current efforts are not. One mining manager acknowledged that the mining industry's past record is not good: "Mining exploration and development often took place in remote areas and when the companies finished they just walked away. Over 75 years, you build up a reputation for leaving a mess behind."[51]

[51] Blair Crawford, "This land is whose land?," *Northern Miner Magazine*, May 1990, pp. 34-35.

It should be pointed out that lack of concern about public safety and the environment was not historically confined to the mining industry, and it is only comparatively recently that society a whole has become more attuned to these issues. This recognition does little, however, to alleviate a general concern about the human safety of mining-related activities when reports of industrial non-compliance with environmental or health and safety regulations continue to show up in the newspapers.[52]

[52] See, for example, "Same Names appear anew on polluter list," *The Vancouver Sun*, 25 January 1992, p. A5.

On 9 May 1992, a methane gas explosion in the Westray Coal mine at Plymouth, Nova Scotia, resulted in the deaths of 26 miners. The explosion raised many questions about the political nature of a project which received $80 million in federal loan guarantees and $12 million in provincial loans. Disasters of this kind, which receive a great deal of media attention, reinforce popular notions about industry-government liaisons at the expense of the general public interest. The opposition party leader in Nova Scotia reached a large and receptive audience when she stated, "The fact of the matter is ... this is not the result of an act of God. This was the result of public policy; the result of an agenda driven by politics."[33]

[33] Nova Scotia New Democratic Party Leader Alexa McDonough quoted in, "Political fallout already felt in aftermath of mine tragedy," *The Northern Miner*, 18 May 1992, p. 6.

Mining associations can release plenty of statistics pointing out the relative safety of mining compared to many day-to-day activities – such as driving a car to work – but statistics have far less impact on the public consciousness than a tragic explosion with the loss of several lives. Even if industry could demonstrate complete regulatory compliance, the setting of scientifically and socially acceptable levels of industrial waste emission levels or acceptable safety standards will remain a hotly contested issue.

In the case of the environment, the mining industry claims that it now takes its responsibilities seriously, arguing that it can operate in sensitive areas with minimal disruption. Such claims do not yet outweigh the negative public impressions which have developed over the past century, or current concerns about such issues as the contamination of water tables. When the public does think about the mineral industry, the image of a mine's headframe or a waste-pile on the horizon cannot compete emotionally with the vision of an untouched wilderness. Moreover, industry claims that mining requires only a small portion of the overall land base do not adequately take into account the so-called "shadow effect" of mining. That is, when development occurs and roads are built to the minesite, the impact on the ecosystem is far greater than the mining activity itself. The development of resource roads is often followed by tourism, service industries and other recreational activities. If a policy goal is to develop the North and to promote economic opportunities, then these spin-off effects can be – and have been – viewed in a positive light. From another perspective, however, as economic activity multiplies, so do the problems associated with protecting the environment.

Resource industries have not generated the broad citizen base of lobbying support that the more diffuse, international environmental groups enjoy. According to one estimate, between one and two million Canadians from across the social spectrum belong to a least one of 1,800 environmental groups.[34] One observer of "green lobbies" claims that,

> During the past 20 years, Canada's environmental groups have elbowed their way into the policy communities that shape government decisions on the environment. In the process, they have transformed traditional decision-making systems. They have expanded the number of policy communities by putting a host of new issues on the agenda, altered the make-up of existing communities by demanding a voice, and added to the number of government officials involved in the process by pressuring for the establishment of new environment departments and regulatory authorities.[35]

[34] Jeremy Wilson, "Green Lobbies: Pressure Groups and Environmental Policy," *Canadian Environmental Policy: Ecosystems, Politics, and Process*, Robert Boardman, ed., Toronto: Oxford University Press, 1992, p. 111.

[35] *Ibid.*, p. 123.

Those citizens inclined to support resource development are the ones who can draw a direct link between the industry and their own livelihood. The vast majority of the voting Canadian population live in urban centres, indifferent to the links between raw materials and the consumer goods that surround them or to the economics of resource-producing regions.

6. Public Policy Approaches to Land Use and the Mineral Industry

Government assistance to the industry has been reduced in recent years by competing demands on its resources and conflicting policy goals. Nevertheless, in conjunction with their regulatory role, governments still provide many types of direct and indirect assistance to the industry. For example, recent efforts to promote awareness of the mining industry through industry- and government-sponsored "Mining Weeks," as well as government attempts to form partnerships with the public on sustainable development questions, signal a recognition on the part of government and industry of the importance of public support for resource-related initiatives. If these initiatives are to be effective, it will be necessary to make efforts that go beyond public relations campaigns. The Westray Coal disaster has done little to allay concerns that government and industry exclude the general public's concerns in resource-related decisions.

Ways must be found to develop constructive approaches to include public participation in land use development decisions. The public is demanding that its concerns be addressed in the policy process. As public interest groups become more politically influential and as society becomes more pluralistic, Alan Ewart believes that the management of natural resources must reflect this and provide for more diverse values.[56]

[56] Alan Ewart, "Wildland Resource Values: A Struggle for Balance," *Society and Natural Resources*, Vol. 3, October-December 1990, p. 390.

One policy approach to reconciling competing demands over land use has been that of integrated resource management. Resource management policies which, for example, establish buffer zones between logging or mining activities and recreational areas (particularly around waterways) have long been used as a way to manage Crown land and satisfy the differing demands of a variety of users.

Yet there are some who are wary about government efforts to promote a "multiple-use" approach which, in practice, may prove to be little more than a quick fix – a way of temporarily reconciling industry's and environmentalists' concerns.[57] Jeremy Wilson points out that "piecemeal" approaches to policy-making are most suited to a desire by governments to limit political risk. Incrementalism, maximizing room for political manoeuvre, concessions to various organized groups, are strategies which typically define government decision-making.[58]

[57] Jeremy Wilson, "Wilderness Politics in BC," in *Policy Communities and Public Policy in Canada: A Structural Approach*, William D. Coleman and Grace Skogstad, eds., Toronto: Copp Clark Pitman Ltd., 1990, p. 161.

[58] *Ibid.*

Integrated resource management approaches, however, if they are carefully conceived and implemented, do have a certain appeal. They recognize the need to respond to a plurality of competing interests, and they attempt to balance the tensions implicit in the term "sustainable development." Efforts to include environmental groups in a multiple-use planning process traditionally dominated by industry are sure to be viewed by some as nothing more than attempts at co-optation. If, however, interested parties agree to participate in the planning process, integrated resource management may be the only realistic way in which acceptable policy solutions can be devised. In May 1992, several major environmental groups in British Columbia announced that they were creating an

Environmental Mining Caucus of British Columbia, to work with the mining industry to establish land use strategies. Representatives of the new organization claimed that few mining projects were as sensitive as the Windy Craggy deposit and most could be made "environmentally acceptable."[59]

[59] "Greens don't want fight, mining investors told," *The Globe and Mail*, 29 May 1992, p. B2.

Multiple-use approaches must be accompanied by improved communications – communications among local communities, interest groups, industry, politicians, and bureaucrats. An important part of the process would include the provision of comprehensive information and the encouragement of public participation. Public participation may eventually lead to some decentralized forms of decision-making where resource decisions may be influenced by residents living in nearby communities. Such participation could accomplish many goals, including decentralizing decisions so that problems can be dealt with more effectively, stimulating community-based development, and reducing conflict by increasing participatory democracy. The legitimacy of government in its management of resources and of industries to exploit those resources would be strengthened. Local communities are best attuned to their own environmental or health and safety problems.

To participate effectively, the public must understand the interdependent relationship between a healthy environment and a healthy economy. The media and the educational system have managed to raise public consciousness about the importance of protecting the environment, but they have been much less successful at explaining the dynamics implied in the term *sustainable development*. Jack Patterson of the British Columbia and Yukon Chamber of Mines suggests that for the resource industry to survive, the public must be educated to understand development and the environment in terms of relative risk. He explains, "Most people accept the risks associated with living in a modern industrial society because they are familiar with it, but they have no understanding of the risks associated with mining. Consequently, they don't want to accept any risk at all."[60]

[60] Interview with Jack Patterson, Managing Director, British Columbia and Yukon Chamber of Mines, Toronto, 29 March 1992.

Public education is an important prerequisite for expanding the public's role in land-use decisions. That, however, is an easier task than actually getting the public to participate, particularly if such efforts are seen to be ineffective. Encouraging public submissions to government commissions, for example, will not accomplish much if there is a feeling that such efforts will have little impact on the net result.

On the other hand, when there is a high level of interest in an issue, confrontational public meetings on the part of various interest groups do little to encourage resource managers to open up the process to more participation. Too vigorous a pluralism can effectively paralyze the ability of decision-makers to devise effective or creative solutions to resource management.

At the policy-making level, geographer Bruce Mitchell suggests that conflict and uncertainty must be dealt with by using approaches which would "ensure that interests with a legitimate concern have an opportunity to shape the nature of management and development decisions."[61] While it may be very difficult to discern whose concerns are legitimate, Mitchell's approach is worth consideration. His strategy includes a combination of four approaches: Balance, Ecosystems, Adaptiveness, and Teamwork (BEAT). Mitchell emphasizes that a comprehensive ecosystem approach would result in an "unrealistically broad scope of the problem." He therefore favours an integrated rather than a

[61] Bruce Mitchell, "BEATing Conflict and Uncertainty in Resource Management and Development," *Resource Management and Development: Addressing Conflict and Uncertainty*, Bruce Mitchell, ed., Toronto: Oxford University Press, 1991, p. 272.

comprehensive planning approach. This approach attempts to deal with competing interests while recognizing the need for some overarching policy framework.

To compete in this kind of policy environment, this industry must replace popular assumptions about the non-renewable nature of mineral resources with a general public recognition that such resources are sustainable – given a stable investment climate. Secondly, the increasing role of interest groups in shaping the political agendas must be acknowledged. Education about the nature of the economic and the environmental impact of the mineral industry will help these groups play a constructive role in the decision-making process.

Government Support and Mineral Industry Competitiveness

Although governments are engaged in a process of accommodating the demands of diverse resource-users, industry representatives are now questioning whether governments in general are committed to supporting resource development over the long term.

As pointed out earlier, government assistance to the industry has been substantial over the years. While jurisdiction over mineral resources in Canada belongs to the provinces, the federal government has played an useful role in many areas, including coordinating regulatory activity, international trade, and areas where its jurisdiction overlaps with the provinces such as in environmental issues.

The Mineral Policy Sector of Energy, Mines and Resources Canada, for example, was a major player in establishing two important international research groups: the Lead/Zinc Study Group and the Nickel Study Group. Such groups help both consumers and producers to assess the world markets, and to make more realistic production and investment decisions. W. Keith Buck suggests they introduce an element of stability into the international market without imposing the market rigidities or distortions that accompany binding economic provisions.[62] Energy, Mines and Resources Canada also has the role of explaining the importance and the specials needs of the mineral industry to other government departments.[63]

Both federal and provincial governments provide various forms of financial assistance to the mineral industry, supporting exploration, development and production activities through joint ventures, the provision of infrastructure, educational programs, tax expenditures and direct assistance. The federal/provincial Mineral Development Agreements of the 1980s provided $261 million of government support for geoscience, extraction and processing technology, economic development, and public information. Provincial governments also sponsor prospector's training courses, education programs, energy subsidies, and mine development programs.

The mineral industry often feels, however, that on balance governments do more "to" them than "for" them. Regardless of the accuracy of this perception, many in the industry are concerned that governments in general are not recognizing the importance of the mineral industry's continuing contribution to Canada.

[62] W. Keith Buck, *Intergovernmental Mineral Commodity Arrangements*, Kingston: Centre for Resource Studies, Queen's University, 1986, pp. 58-59.

[63] Margot Wojciechowski, "The Mineral Policy Sector: A Valuable Asset in the Federal Portfolio," *CRS Perspectives*, Kingston: Centre for Resource Studies, Queen's University, February 1992, No. 38, p. 8.

Margot Wojciechowski, for example, quotes a senior civil servant's comment that civil servants outside of Energy, Mines and Resources Canada (EMR) often regard the mineral sector with "ignorance and disdain."[64] If this is an accurate reflection of how many decision-makers outside EMR regard mining, then strategic competitive initiatives that cut across departments could significantly affect the future of the mineral sector in Canada.

One report released in 1991 that has been given a great amount of attention, at least by the business world, is Michael Porter's *Canada at the Crossroads: The Reality of a New Competitive Environment.* Porter does make several arguments of particular relevance to the mineral industry. First, he recognizes that government will play a key role in the future competitiveness of the economy, stating, "The question is not whether government should have a role, but what that role should be.... Government policy should be directed to building the skills, research infrastructure, and other inputs on which all firms draw."[65] Secondly, he acknowledges that natural resources constitute an important part of the economy and that Canada should build on its traditional strengths.

> Resource-based industries have been and will remain a mainstay of Canada's economy. But threats exist to the sustainability of Canada's position in many resource-based industries – threats such as declining real commodity prices, the emergence of low-cost foreign suppliers, and technologically-driven changes in end-markets. In the future, Canadian resource producers will be under unprecedented pressure to increase productivity, use more sophisticated technology and specialized skills, and develop more sophisticated and differentiated products.[66]

Similarly, a consultation paper was released by the Government of Canada. Entitled "Prosperity Through Competitiveness," the paper was part of an overall initiative to determine ways to facilitate Canada's continuing prosperity. It stressed the importance of increased investment in science and technology:

> Canadian industries, including resource sectors, invest proportionately less in R&D than their counterparts in other leading industrial nations. Meanwhile, our achievements in fields such as telecommunications, nuclear technology and medical science show that we can lead the world when we focus our efforts.[67]

Is the Canadian government recommending an abandonment of the resource sector in favour of information-intensive industries, as some stakeholders in the mineral industry fear?[68] In its *Prosperity* paper, the government acknowledges, "Canada's traditional sources of strength – the resource industries being the prime example – can increase their contribution to the economy through their role as both a market for, and producers of, advanced products and services."[69] As an example of this, the paper referred to Inco's extensive initiatives in R&D, ranging from new and more efficient processes for ore extraction to automated machinery, that have marketing potential.[70]

Industry representatives quite rightly point out that, contrary to the public perception, mining is *not* a "pick-and-shovel" industry but a technology-intensive enterprise. For example, a current feasibility study funded by PRECARN Associates Inc. (a consortium of 36 Canadian companies) focuses on research

[64] *Ibid.*

[65] Michael E. Porter, *Canada at the Crossroads: The Reality of a New Competitive Environment*, a study prepared for the Business Council on National Issues and the Government of Canada, Harvard Business School, and Monitor Company, October 1991, p. 85.

[66] *Ibid.*, p. 73.

[67] Government of Canada, "Prosperity Through Competitiveness: Consultation Paper," Minister of Supply and Services Canada, 1991, p. 16.

[68] A paper presented in 1991 by the Prospectors and Developers Association of Canada expressed concerns that the Prosperity Initiative was not as supportive of the resource industries as it could have been. It was argued that "A central policy recommendation in *Prosperity Through Competitiveness* is a move away from natural resources and towards 'high-technology' industries." The comment was made in the paper, "The Importance of the Mineral Industry in Canada," presented at the 48th Annual Mines Ministers' Conference, Halifax, Nova Scotia, 22-24 September 1991.

[69] Government of Canada, "Prosperity Through Competitiveness: Consultation Paper," Minister of Supply and Services Canada, 1991, p. 15.

[70] *Ibid.*, p. 16.

and development in artificial intelligence and robotics. Named the Mining Automation Project, the study addresses "the development of applications using Artificial Intelligence and Robotics based on a communication infrastructure for mining automation in the 21st century." It is hoped that the development of these systems will make it possible to mine orebodies at greater depths, in difficult ground, or in environmentally hazardous conditions. Project goals include plans to work in alliance with Canadian firms who will produce new products, services and processes based on the new mining automation technologies. Engineers from universities and industry are examining the technical aspects of the project. Social scientists and business analysts are considering the competitive, industrial, and public policy environment.[71]

[71] G.R. Baiden, M. Scoble, S. Flewelling, "Robotic Systems Development for Mining Automation," a paper presented at the 94th Annual General Meeting of the Canadian Institute of Mining, Metallurgy and Petroleum, 26-30 April 1992, p. 1.

Will the Canadian resource sector as a whole and the smaller companies profit from such developments or will the benefits accrue to only a few corporations? While logic would suggest that it is the large, multi-national companies that are most likely to benefit from such initiatives, there could be spin-off advantages for other companies. These spin-offs are important to those involved in all stages of the mining process, including exploration and development. For example, the introduction of increased automation and technology, could make recovery processes more efficient. Environmental and health and safety concerns may lessen, for example, through improved methods for monitoring emissions and more automation. New products could be developed. Perhaps most importantly, public perceptions about the environmental and economic liabilities of a resource-dependent economy could change.

Value-added strategies are not being recommended to the exclusion of upstream activities such as exploration and mining. Equal attention can be paid to the extraction and mining of minerals and to the processing and marketing of the end product. A variety of government and industry strategies could be employed to strengthen the industry overall.

7. Conclusion

Many explanations are provided in the literature (not all of them discussed in this paper) for the mineral industry's difficulties. An examination of these explanations inevitably leads one to the conclusion that an array of new strategies will have to be employed if the industry is to remain competitive in a world that is becoming increasingly interdependent and complex.

Global markets are responding to a diversity of forces presenting users of raw materials with an array of choices. Analysts are suggesting that, to be able to compete in those markets, the industry has to become more creative in the ways it shapes and responds to the needs of its customers. Such creative approaches will influence public and government perceptions about the abilities of the mining industry to adapt to new competitive challenges.

To respond effectively to the changing political environment, the industry must now be prepared to deal with the interests and concerns of competing resource-users. The demands on the state to manage the interests of the economy and society are continuing to grow. The ability of government to respond to those demands is decreasing.

The mineral industry's ability to explore and develop new deposits is not threatened by the establishment of reasonable and responsible environmental guidelines or the settling of Aboriginal land claims. The greatest political threat comes from the combination of several factors: the uncertainty created by extended policy negotiations, a shifting public policy agenda, changing regulatory guidelines, and restricted access to potentially mineral-rich tracts of land. Without public support for policies that would encourage an attractive investment climate, Canada may no longer be a world leader in mineral production.

Critics ask why we should worry about this prospect. Those who argue that the mineral industry is not worth saving have yet to offer a persuasive alternative for economic growth in Canada. To be persuasive, critics must be able to explain the competitive advantage in importing fuels, industrial minerals and metals to support our secondary and tertiary industries. They must also be able to explain the advantage of abandoning a well-established sector that has continued to contribute significantly to regional development and the Canadian economy as a whole. Most importantly, they must be able to demonstrate why governments cannot employ an array of strategies that can build on our traditional areas of strength while at the same time diversifying the economy.

In the absence of any readily available panacea, therefore, government decision-makers are facing a daunting challenge. They must develop policies which can accommodate growing and competing public demands while formulating strategies for continuing Canadian economic prosperity.

The challenges for the mineral industry are also considerable. In addition to its market and economic considerations, it must persuade the public and governments of the continuing contribution of mineral development to Canadian economic competitiveness. It must also be able to reach compromises with those who have a competing vision about the future of Canada's natural resources. The Canadian mineral industry is being forced to adapt to those new realities. If it can do so, references to a "sunset industry" need not become self-fulfilling prophecy.

The Author

Mary Louise McAllister is the Associate Director – Research at the Centre for Resource Studies and an Adjunct Assistant Professor at the Department of Political Studies, Queen's University. Dr. McAllister received her B.A., M.A. and Ph.D. in political studies at Queen's. She has taught and/or researched in the areas of natural resources policy, public administration, local government, intergovernmental relations, and political communications. She is currently researching land use policy and integrated resource management.

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